



August 5, 2011

Garry Rhodes
Building Commissioner
Town of Lexington
1625 Massachusetts Ave.
Lexington, MA 02420

Subject: B300 Chiller Enclosure Noise Reduction
Lexington Technology Park
Lexington, MA
Acentech Project No.: 620746

Dear Garry:

The noise reduction enclosure around the Building 300 (B300) office chillers at the Lexington Technology Park (LTP) has been completed. This letter summarizes our assessment of the noise control provided by the construction.

Background

The two B300 office side chillers had been identified as a one of the more prominent sources of sound from the LTP site. The chillers produce a tonal noise, which is generated by the screw compressors; it was this noise that was heard by the residents in the neighborhood.

The enclosure around the chillers was constructed to reduce this tonal noise for the neighbors. It is important to note that while the enclosure was intended to reduce the tonal noise of the chiller, the enclosure was anticipated to reduce the overall sound level along the LTP property line by only approximately 1 dBA.

Sound Levels of Chillers on B300 Rooftop

To best assess the noise reduction of the enclosure around the B300 chillers, we assessed the sound levels on the B300 rooftop prior to and after the installation of the enclosure. The measurement location was 25 feet to the north of the northern chiller, within the visual screen wall. This location can be seen on Figure 1.

Prior to the installation of the enclosure, the sound level with the chiller operating was 81 dBA. The octave band frequencies of this sound level are shown in Figure 2.

After the installation of the enclosure around the chiller, the sound level was measured to be between 68 and 72 dBA. The sound level spectra from the 72 dBA measurement are also shown in Figure 2.

Given this pre- and post-installation comparison, we find that the enclosure is providing approximately 9 dBA of noise reduction from the chillers when one is near the equipment.

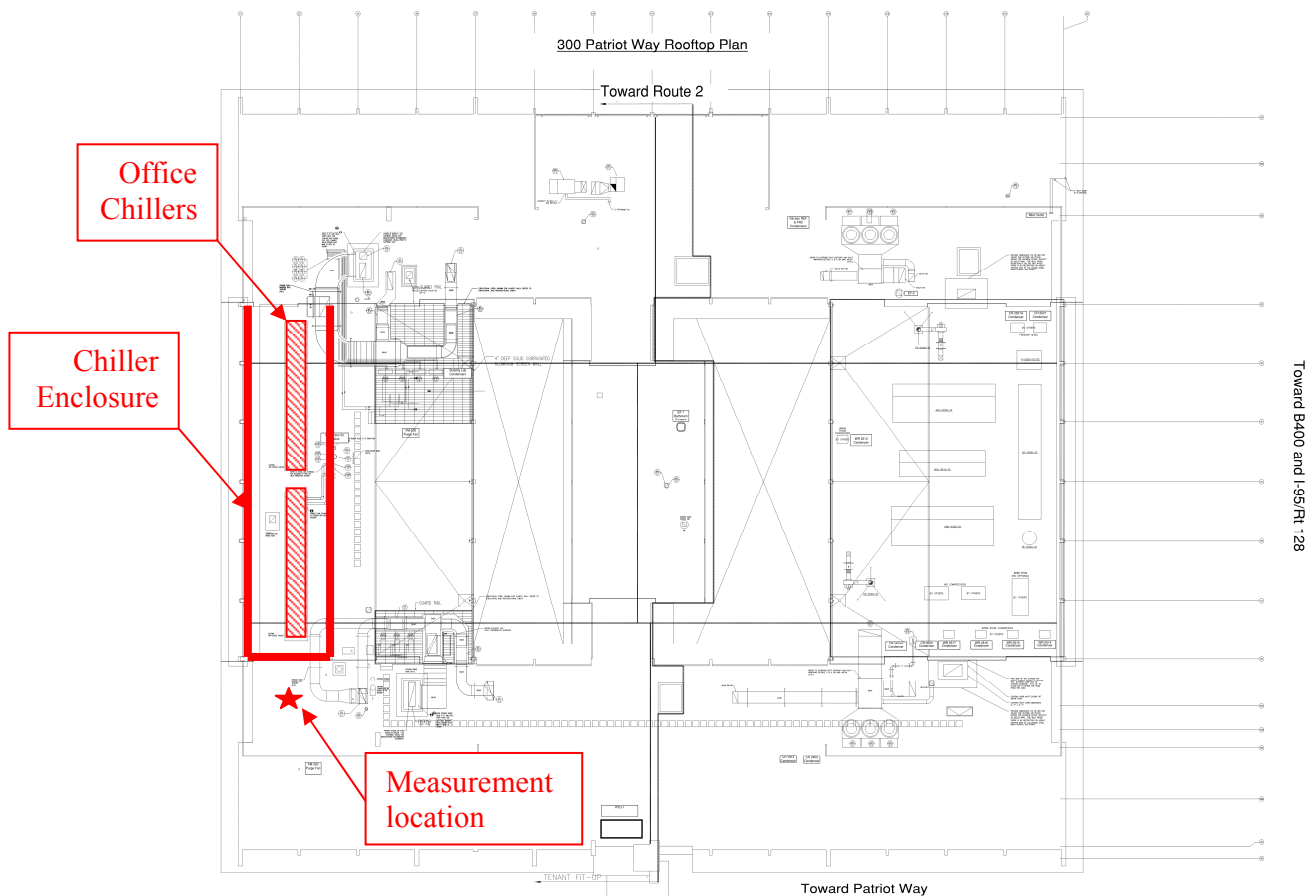


Figure 1 – B300 rooftop with measurement location of the chiller noise.

As described above, the purpose for installing the enclosures was to reduce the tonal noise perceived at the adjoining residential properties. For technical reasons, the variations in the level of such tonal noise are difficult to measure because of concurrent variations in meteorological conditions and other environmental (primarily traffic) sound levels. Tonal noise issues can also present significant spatial variations, which can confound these assessments. However, in addition to measuring the rooftop sound levels discussed above, I made personal observations along the edge of the Building 300 parking lot. It is my judgment that the tonal noise from the office chillers is quieter and less prominent than it had been in this same location prior to the installation of the enclosure.

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We trust this provides you with the information that you are seeking for the project. Please call if you have questions about this information; my direct number is 617-499-8058.

Sincerely,

ACENTECH INCORPORATED



Jeffrey L. Fullerton, INCE Bd. Cert., LEED AP
Director, Architectural Acoustics Group

Encl.: Figure 2 – Chiller sound levels on the B300 rooftop without and with the enclosure

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Figure 2
LTP - B300 Rooftop Chiller Sound Levels
Without and With Enclosure around Chiller
July 7, 2010 and July 21, 2011

